AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Previously Presented) A communication method for a noncontact RF ID system comprising:

communicating a data sequence having a first waveform which corresponds to one of codes “0” or “1” and which has a length of time T;

communicating a data sequence having a second waveform which corresponds to the other of said codes “0” or “1” and which has a length of time T; and

communicating a data sequence having a third waveform which corresponds to m (m is a natural number equal to or greater than 2) codes that are the same as the codes of the second waveform and where the third waveform has a length of time mT, wherein

the first waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and rises only at a position of T/2,

the second waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and rises only at a position of T/2, and

the third waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and rises only at a total of m positions of T/2 + nT (n=0. . . ., m-1).

2. (Previously Presented) A communication method for a noncontact RF ID system comprising:

communicating a data sequence having a first waveform which corresponds to one of codes “0” or “1” and which has a length of time T;

communicating a data sequence having a second waveform which corresponds to one of codes “0” or “1” opposite to the first waveform and which has a length of time T; and

communicating a data sequence having a third waveform which corresponds to m (m is a natural number equal to or greater than 2) codes that are the same as the codes of the second waveform and which has a length of time mT, wherein

the first waveform with 50% duty ratio is in a high level state at a starting point, is in a low level state at an end point and falls only at a position of T/2,

the second waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and falls only at a position of T/2, and

the third waveform with 50% duty ratio is in a low level state at a starting point, is in a high level state at an end point and falls only at a total of m positions of T/2 + nT (n=0,…, m-1).

3. (Cancelled)

4. (Previously Presented) A communication method for a noncontact RF ID system according to claim 1, wherein:

in the case in which the state transition is rising, the first waveform is a waveform that maintains a low level in a negative time direction for T/2 from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for T/2 in a positive time direction from this center point;

the second waveform is a waveform that maintains a high level state in the positive time direction for t1 from a point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time t2 until an end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time t2 until a starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is a C(2n) waveform which, in the case in which m=2n, maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t{2 (n - k) + 6} from the point in time that the waveform rises for the (n + 1 - k)th time; maintains a low level state for t {2 (n - k) + 3} in the negative time direction from the point in time that the waveform rises for the (n + 1 - k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t{2 (n - 1) + 3} from the point in time that the waveform rises for the nth time; maintains a high level state in the positive time direction for t{2 (n - 1) +3} from the

point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for T/2 from the point in time that the waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction for t{2 (n - k) + 3} from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t {2 (n - k) + 6} from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for t3 from the point in time that the waveform rises the last time; and maintains a low level state for time t4 until an end point of the waveform, where n and k are natural numbers; $n \geq k \geq 1$; t is time; T is one cycle of the first and second waveforms; and t3 + t4 = T/2; t{2 (n - k) + 5} + t{2 (n - k) + 6} = T (when n and $k \geq 2$); and

in the case in which m = 2n + 1, the third waveform is a C(2n + 1) waveform that maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for t4 from the starting point of the waveform; maintains a high level state in the positive time direction for t{2 (n - k) + 6} from the point in time that the waveform rises for the (n + 1 - k)th time; maintains a low level state in the negative time direction for t{2 (n - k) + 3} from the point in time that the waveform rises for the (n + 1 - k)th time; maintains a high level state in the positive time direction for t{2 (n - 1) + 5} from the point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for t{2 (n - 1) + 5} from the point in time that the waveform rises for the (n +

1)th time; maintains a high level state in the positive time direction for t{2 (n - k) + 3} from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t{2 (n - k) + 6} from the point in time that the waveform rises for the (n + 1 + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time t3 from the point in time that the waveform rises the last time; and maintains a low level state for t4 until the end point of the waveform; (where n and k are natural numbers, $n \geq k \geq 1$, t is time, T is one cycle of the first and second waveforms, $t3 + t4 = T/2$, and $t\{2 (n - k) + 5\} + t \{2 (n - k) + 6\} = T$).

5. (Previously Presented) A communication method for a noncontact RF ID system according to 2, wherein:

in the case in which the state transition is a falling state transition, the first waveform is an inverted waveform that maintains a low level in a negative time direction for T/2 from the point in time that the waveform first rises, which is a center point of the waveform, and maintains a high level state for T/2 in the positive time direction from this center point;

the second waveform is an inverted waveform that maintains a high level state in the positive time direction for t1 from the point in time that the waveform first rises, which is the center point of the waveform, maintains a low level state for time t2 until the end point of the waveform, maintains a low level state in the negative time direction for time t1 from the center point of the waveform, and maintains a high level state for time

t2 until the starting point of the waveform (here, t denotes time, T denotes one cycle of the first and second waveforms, and t1 + t2 = T/2); and

the third waveform is an inverted C(2n) waveform which, in the case in which m=2n, maintains a high level state in a positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for time t4 until the starting point of the waveform; maintains a high level state in the positive time direction for t{2 (n - k) + 6} from the point in time that the waveform rises for the (n + 1 - k)th time; maintains a low level state for t {2 (n - k) + 3} in the negative time direction from the point in time that the waveform rises for the (n + 1 - k)th time; maintains a high level state in the positive time direction for T/2 from the point in time that the waveform rises for the nth time; maintains a low level state in the negative time direction for t{2 (n - 1) + 3} from the point in time that the waveform rises for the nth time; maintains a high level state in the positive time direction for t{2 (n - 1) +3} from the point in time that the waveform rises for the (n + 1)th time; maintains a low level state in the negative time direction for T/2 from the point in time that the waveform rises for the (n + 1)th time; maintains a high level state in the positive time direction for t{2 (n - k) + 3} from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t {2 (n - k) + 6} from the point in time that the waveform rises for the (n + k)th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for t3 from the point in time that the waveform rises the last time; and maintains a low level state for time t4 until the end

point of the waveform, where n and k are natural numbers; $n \geq k \geq 1$; t is time; T is one cycle of the first and second waveforms; and $t3 + t4 = T/2$; $t\{2 (n - k) + 5\} + t\{2 (n - k) + 6\} = T$ (when n and $k \geq 2$); and

in the case in which $m = 2n + 1$, the third waveform is an inverted C(2n + 1) waveform that maintains a high level state in the positive time direction for t6 from the point in time that the waveform first rises; maintains a low level state in the negative time direction for t3 from the point in time that the waveform first rises; maintains a high level state for t4 from the starting point of the waveform; maintains a high level state in the positive time direction for $t\{2 (n - k) + 6\}$ from the point in time that the waveform rises for the $(n + 1 - k)$th time; maintains a low level state in the negative time direction for $t\{2 (n - k) + 3\}$ from the point in time that the waveform rises for the $(n + 1 - k)$th time; maintains a high level state in the positive time direction for $t\{2 (n - 1) + 5\}$ from the point in time that the waveform rises for the $(n + 1)$th time; maintains a low level state in the negative time direction for $t\{2 (n - 1) + 5\}$ from the point in time that the waveform rises for the $(n + 1)$th time; maintains a high level state in the positive time direction for $t\{2 (n - k) + 3\}$ from the point in time that the waveform rises for the $(n + 1 + k)$th time; maintains a low level state in the negative time direction for $t\{2 (n - k) + 6\}$ from the point in time that the waveform rises for the $(n + 1 + k)$th time; maintains a low level state in the negative time direction for t6 from the point in time that the waveform rises the last time; maintains a high level state in the positive time direction for time t3 from the point in time that the waveform rises the last time; and maintains a low level state for t4 until the end point of the waveform; (where n and k are natural numbers, $n \geq k \geq 1$, t is time, T is

one cycle of the first and second waveforms, t3 + t4 = T/2, and t{2 (n - k) + 5} + t {2 (n - k) + 6} = T).

6 – 13. (Cancelled)